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**United States Air Force**
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Directorate of Public Affairs, Arnold Engineering Development Center
100 Kindel Drive, Arnold AFB, TN 37389-2213 (931) 454-4204
**http://www.arnold.af.mil**

***AMERICA'S AIR & SPACE ADVANTAGE***

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# White Oak team recognized for hypersonic wind tunnel work

**ARNOLD AIR FORCE BASE, TENN**—The Arnold Engineering Development Center (AEDC) Team Excellence Award went to a team of more than 25 DoD civilian and Aerospace Testing Alliance (ATA) contractor personnel at the center's White Oak, Md., Hypervelocity Tunnel 9 Test Facility. The award recognized the team's success in developing the ability to dynamically pitch a test article at the Mach 8 leg of the tunnel.

The team's efforts have contributed directly to providing time-critical test support for both the Missile Defense Agency's Kinetic Energy Interceptor and the Air Force's force application and launch from the continental U.S. (FALCON) program, according to Dan Marren, the AEDC White Oak site director, and Chief, Hypersonics systems division, operations directorate.

"Our original Mach 8 model support system was designed to hold a test article at a fixed angle for the duration of the run. In an effort to increase our Mach 8 testing efficiency, the team explored options for adding a dynamic pitch capability to Mach 8 testing," explained Arnold Collier, Tunnel 9 project engineer.

"Our objective was to add pitch capability with minimal facility down-time and minimal loss in air flow quality. We were supported in this effort by Terry Hand and his colleagues at the center's test and evaluation group. Terry helped us optimize the design of an extension to our existing Mach 8 nozzle that would preserve flow quality, and also provide additional nozzle length. This extension allows the extended Mach 8 nozzle to interface with the same support equipment that our Mach 10 and Mach 14 nozzles currently access."

Marren, who nominated the team for this award, explained that the Mach 8 dynamic pitch upgrade project started as a suggestion from a Tunnel 9 customer.

“The Theater High Altitude Area Defense (THADD) program had performed significant aerodynamic testing in Tunnel 9 at Mach 10 with their full-scale test article,” he said. “Later in the program, it became necessary to test at Mach 8. Based on the high quality (test) data they received, they wanted to come back to conduct more testing, but at Mach 8.”

Tunnel 9 is comprised of two tunnels or legs. The primary leg was used for aerodynamic testing, while the center leg was developed to support high dynamic pressure Mach 8 testing for programs such as shroud deployment, and full-duplication Mach 7 flow.

“By modifying the Mach 8 nozzle, we were able to operate in the primary test leg, and take advantage of the existing model pitch system,” Collier continued. “The customer funded an upgrade to the facility to pitch test articles at Mach 8 in the same manner we could in our higher Mach tunnel facility, which is what this team did, much to the satisfaction of the customer.”

J.T. McGrath, the Lockheed, Corp. THADD program representative, addressing AEDC management and the team who completed the Mach 8 pitch upgrade project, said, “On behalf of Lockheed Martin, I would like to thank you and your AEDC team for their outstanding efforts in support of the THADD Program. Your Tunnel 9 team was able to push their facility to its extreme for us. We look forward to working with you again in the future.”

**Editorial Note:**

Arnold Engineering Development Center is the nation's largest complex of flight simulation test facilities. The center was dedicated in June 1951 by President Harry Truman and named after 5-star General of the Air Force Henry 'Hap' Arnold, visionary leader of the Army Air Forces in World War II and the only airman to hold 5-Star rank. Today, this $7.8 billion complex has some 58 aerospace test facilities located at Arnold Air Force Base, Tenn., and the center's remote operating location Hypervelocity Tunnel 9 in White Oak, Md. The test facilities simulate flight from subsonic to hypersonic speeds at altitudes from sea level to space. Virtually every high performance flight system in use by the Department of Defense today and all NASA manned spacecraft have been tested in AEDC's facilities. Today the center is testing the next generation of aircraft and space systems. For more information on AEDC visit the center's Web site at www.arnold.af.mil

Caption (group)— The Tunnel 9 team presented with AEDC's Team Excellence Award, included (seated), Chuck Spring, Lisa Schappacher, Mike Metzger, Carol Paschall, Denise Sawyer; 1st Row: Pete Peterson, John Lafferty, Larry Resch, Tao Lee, Madhav Rao, Rita Bell, Chester DiBenedetto, Dan Marren, Susan Drinnon, Arnold Collier, Bill Betz; second row, Joe Coblish, Rick Smith, Ed Huggins, Ray Schlegel, Joe Norris, Bob Lock, Tom Richardson, Bill Yanata, Steve Faini; and back row, Mike Smith, John Boland, Dave Eisentraut, Terry Mullin and Jeff Waldo. Those individuals from the team, who are not in this photo, included Carl Coates, Hugh Oslin and Greg Wannenwetsch. (Photo provided)

Caption (assembly)— AEDC/DOH Operations Group Members Robert Lock (left) and Steve Faini (right) complete final installation and alignment of the new Mach 8 nozzle hardware. (Photo by Arnold Collier)

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